ABSTRACT

A bow and skew reduction control system and method is disclosed. In a tufting machine, an elongate bow roll is positioned intermediate a supply of a
5   backing material to be tufted and a cloth feed roll positioned upstream of a needle bar. The backing material is passed at least partially about the bow roll and is passed over the cloth feed roll and into a tufting zone positioned with respect to the needle bar. The bow roll is provided with an actuator operably coupled to a controller. The roll of backing material is supported at its
10   respective ends by a pair of jack assemblies, the jack assemblies being constructed and arranged for independent operation, and for raising and lowering, respectively, the ends of the roll of backing material as instructed by the controller. At least one, or a plurality, of spaced weft yarn markers are formed or otherwise disposed on the backing material and are parallel with the
15   weft yarns thereof. The weft yarn markers are detected by a control and detection system of which the controller is a part. If the control system determines that the weft yarn markers are not parallel to the needle bar, the controller will selectively instruct either the bow roller actuator, and/or the jack assembly actuators to increase or decrease the tension of the backing material
20   passed into the tufting machine for aligning the weft yarns of the backing material with respect to the needle bar.

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